

## DEPARTMENT OF THE INTERIOR

## Fish and Wildlife Service

## 50 CFR Part 17

Endangered and Threatened Wildlife and Plants; Proposed Endangered Status for *Salpingostylis coelestina* (Bartram's Ixia)

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Proposed rule.

**SUMMARY:** The Service proposes to determine *Salpingostylis coelestina* (Bartram's ixia), a perennial herb in the iris family (Iridaceae) to be an endangered species pursuant to the Endangered Species Act of 1973 (Act), as amended. This plant occurs only in grassy pinelands in a 6-county area of northeastern Florida. It is threatened by habitat loss due to residential land development, by habitat alteration due to the planting of dense stands of pine for pulpwood, and by suppression of naturally-occurring fires that formerly maintained open, grassy understory vegetation beneath the pines.

This proposal, if made final, would implement the protection and recovery provisions afforded by the Act for Bartram's ixia. The Service seeks data and comments from the public on this proposal.

**DATES:** Comments from all interested parties must be received by August 17, 1989. Public hearing requests must be received by July 3, 1989.

**ADDRESSES:** Comments and materials concerning this proposal, and requests for public hearing should be sent to the Field Supervisor, Jacksonville Field Office, U.S. Fish and Wildlife Service, 3100 University Boulevard South, Suite 120, Jacksonville, Florida 32216. Comments and materials received will be available for public inspection, by appointment, during normal business hours at the above address.

**FOR FURTHER INFORMATION CONTACT:** David J. Wesley, Field Supervisor, at the above address (telephone: 904/791-2580 or FTS 946-2580).

## SUPPLEMENTARY INFORMATION:

## Background

*Salpingostylis coelestina* (Bartram's ixia) is a grassy-leaved herb belonging to the iris family (Iridaceae). It was seen by William Bartram, an early American naturalist, on his first trip to Florida in the spring of 1766. He collected a specimen from West of Kanapaha Prairie, Alachua County, (Wunderlin et al. 1980). His well-known *Travels* (published 1791) mentions "azure fields of cerulean Ixea." A plate in the book illustrates the plant, which he named *Ixea coelestina* (Harper 1959, pp. 98,99, 360). Harper gave Bartram's locality as "quite definitely near the shore of Lake Dexter, Volusia County," on the St. John's River (p. 360), but Ward (1979) suspected that Bartram had changed the location for literary effect, since the plant has not since been found south of Palatka, Putnam County, 42 miles to the north. Bartram's scientific names for plants have been generally accepted as legitimate by botanists since Merrill (1945) defended them.

After Bartram, the ixia was misidentified until 1931, when John K. Small of the New York Botanical Garden, led by a staff member of the University of Florida, saw it flowering in pine flatwoods north of Starke, Bradford County. Small correctly identified the plant as Bartram's ixia, created a new genus for it, and corrected Bartram's spelling of the specific epithet, resulting in the name *Salpingostylis coelestina* (Small 1931, Ward 1979). Later, a careful search of major herbaria by Foster (1945) turned up several specimens of Bartram's ixia that had been collected in the nineteenth century. Foster assigned the plant to the genus *Sphenostigma*, making it *Sphenostigma coelestinum*. Goldblatt (1975) retained the species in the genus *Sphenostigma*. Since then, the type species of *Sphenostigma* (from Brazil) has been reassigned to the genus *Gelasine*, but other species that had been assigned to *Sphenostigma* do not belong in that genus. Under the code of botanical nomenclature, the name *Sphenostigma* can no longer be applied to Bartram's ixia (R. Goldblatt, Missouri, Botanical Garden, St. Louis, personal communication, July 1988). Until the taxonomy of this part of the iris family is clarified, Bartram's ixia can be treated as a genus, consisting of only one species, under Small's name, *Salpingostylis coelestina*.

*Salpingostylis coelestina* is a perennial herb, about 30 centimeters (1 foot) tall. The bulb is dark brown, with a papery coating, well buried in the soil. The basal leaves are usually 2 in number, narrowly linear, 1.5-3

millimeters wide and 20-30 centimeters long. The flower stalk (scape) rises from the ground and has a spathe with one or two flowers. The flowers usually open at dawn (by 9 a.m. if the morning is cool), usually closing by 11 a.m. (later if the day is cloudy). The flowers are 5 centimeters across. The six tepals (petals and sepals that look alike) are violet when they open, fading to blue before the wilt. The three stamens are short and bright yellow. The fruit is a capsule. When flowering, no other plant in the southeastern United States can be mistaken for Bartram's ixia. Flowering may start in April (Ward 1979). In 1987, flowering began by early May, peaked at Memorial Day, and continued sporadically until late June. In 1988, cool, dry weather seemingly stretched out the flowering season (Martin 1987; Peacock personal communication 1988).

Bartram's ixia is native to pine flatwoods, with more or less scattered pines (usually longleaf, sometimes slash) rising above an understory of wiregrass (*Aristida stricta*), with other grasses, herbs, and low shrubs. The understory burns readily, and the vegetation is highly adapted to fire. Clewell (1986) uses the term "firelands communities" for flatwoods and similar fire-dependent vegetation. In the past 30 years, most flatwoods in northeastern Florida have been converted to dense stands of slash pine planted for pulpwood.

Observation of a Bartram's ixia site where the flatwoods vegetation is intact due to prescribed burning and cattle grazing shows that, under these conditions, Bartram's ixia flowers the spring after a fire but not in springs following years without fire (Martin 1987). Large number of ixia flowers have been observed in pine plantations where the trees had recently been cut and the ground disturbed by logging equipment. Smaller numbers of flowers have been observed in recently-plowed fire breaks. Since Bartram's ixia plants do not flower every year under such circumstances, and because the plants are very inconspicuous when not in flower, populations of the ixia may remain unnoticed until fire, logging, or other disturbance occurs. This limits the accuracy of estimates of the ixia's abundance within its geographic range, although the plant's tendency to occur, and to flower, along the edges of road rights-of-way assures that the plant's geographic range is reasonably accurately known. One roadside that was visited by botanists in 1979, 1987, and 1988 has had flowering Bartram's ixias each year (Wunderlin et al. 1980; Martin 1987; Peacock personal communication 1988).

Bartram's ixia occurs in a limited geographic area between Jacksonville, St. Augustine, and Gainesville, Florida, including southern Duval County (where the plant appears to be nearly extirpated), northern St. Johns County west of Interstate 95, Clay County, Putnam County north of Palatka, Bradford County north of Starke, and Baker County south of Interstate 10 (Martin 1987). Within its range, Bartram's ixia is restricted to pine flatwoods vegetation. Bartram's ixia appears to be especially characteristic of soils with the water table at or near the surface during the winter. At one site where the native vegetation is intact, the ixia is restricted to the grassy margins of shallow depressions, where it occurs with the purple pitcher plant (*Sarracenia purpurea*), wiregrass, and *Aletris* (a member of the lily family). Small populations of Bartram's ixia occur along the grassy edges of rights-of-way of paved roads, usually with *Aletris*, *Calopogon* orchids, and other plants of wet areas (Martin 1987; Peacock personal communication 1988).

Herbarium specimens and observations (Ward 1979, Wunderlin et al. 1980) indicate that as pine flatwoods have been converted to dense pine plantations, and as fire suppression has become increasingly prevalent and effective, flowering Bartram's ixia plants have become fewer. Some site preparation methods associated with forestry (bulldozing, root raking, bedding, chopping) are likely to destroy or damage Bartram's ixia plants (Kral 1983). It is possible that the shady conditions of maturing pine plantations are not favorable to the ixia. This is certainly the case for other fire-adapted members of the pineland flora (Clewell 1986).

Section 12 of the Endangered Species Act of 1973 directed the Secretary of the Smithsonian Institution to prepare a report on plants considered to be endangered, threatened, or extinct. This report, designated as House Document No. 94-51, was presented to the Congress on January 9, 1975. In this report, Bartram's ixia, under the name *Sphenostigma coelestina* (sic), was considered threatened. On July 1, 1975, the Service published a notice in the Federal Register (40 FR 27823) of its acceptance of the report as a petition in the context of section 4(c)(2) (now section 4(b)(3)) of the Act, as amended, and of its intention to review the status of the plant taxa contained within. On December 14, 1980, the Service published a notice of review for plants (45 FR 82480), which included *Sphenostigma coelestinum* as a category

2 candidate (a taxon for which data in the Service's possession indicate listing is possibly appropriate). A notice of review published on September 27, 1985 (50 FR 39526) maintained *Sphenostigma coelestinum* as a category 2 candidate. The proposal to list this species as endangered is based on the information available in 1980, augmented by searches for the plant carried out by Martin (1987), with all sites revisited at least once by him in 1988, and by Peacock (personal communication 1988).

Section 4(b)(3)(B) of the Act, as amended in 1982, requires the Secretary to make findings on certain pending petitions within 12 months of their receipt. Section 2(b)(1) of the 1982 Amendments further requires that all petitions pending on October 13, 1982, be treated as having been newly submitted on that date. This was the case for *Sphenostigma coelestinum*, because the Service had accepted the 1975 Smithsonian report as a petition. In October of 1983, 1984, 1985, 1986, 1987, and 1988, the Service found that the petitioned listing of this species was warranted but precluded by other listing actions of a higher priority, and that additional data on vulnerability and threats were still being gathered. Publication of the present proposal constitutes the final finding that is required.

#### Summary of Factors Affecting the Species

Section 4(a)(1) of the Act (16 U.S.C. 1531 *et seq.*) and regulations (50 CFR Part 424) promulgated to implement the listing provisions of the Act set forth the procedures for adding species to the Federal lists. A species may be determined to be endangered or threatened due to one or more of the five factors described in Section 4(a)(1). These factors and their application to *Salpingostylis coelestina* (Bartram) Small (= *Sphenostigma coelestinum* (Bartram) Foster) (Bartram's ixia) are as follows:

A. *The present or threatened destruction, modification, or curtailment of its habitat or range.* Bartram's ixia is restricted to pine flatwoods in northeastern Florida. Similar habitat elsewhere in Florida and other southeastern States lacks the ixia. In the past 30 years, nearly all of the flatwoods in northeast Florida have been converted to pine plantation, with densely planted slash pine. When the trees mature, there is little understory vegetation. Planted pine stands are burned only occasionally, if at all. Additionally, ditching and site preparation methods such as bedding now allow the successful planting of

pinus on sites that previously would have been too wet. Clewell (1986) noted that some of the understory plants characteristic of flatwoods persist under the first crop of pines to be planted on a site, but that "in subsequent rotations, these residual plants will be much less important or entirely absent." Clewell drew on three studies of pine plantations within the range of Bartram's ixia, although none was known to have this plant. The discovery of flowering populations of flowering Bartram's ixia in two recently cut-over pine plantations in 1988 shows that the plant can persist under the first crop of pines; however, experience with other species of the same habitat indicates that the ixia will almost certainly decline after the sites are replanted with pines (Clewell 1986).

Some sites that once had populations of Bartram's ixia have been converted to pastures, where the plants do not persist, or to miscellaneous land uses. Near Starke, a junkyard displaced a site that had been visited by Small (Wunderlin et al. 1980).

The growth of the Jacksonville metropolitan area is a threat to Bartram's ixia. The plant was collected in the Mandarin section of Duval County (Jacksonville) in 1960, but this area is now almost entirely residential. Bartram's ixia is still fairly abundant along paved roads in northwestern St. Johns County south of Jacksonville, but this area will almost certainly be developed for residential and commercial purposes. Four residential/mixed use developments large enough to require approval through Florida's Development of Regional Impact (DRI) process have been proposed for this area already. These projects might house as many as 143,000 people within 20 years ("Jacksonville Times-Union", August 21, 1988). The ixia is also locally abundant in remnant flatwoods around Middleburg and Orange Park in Clay County, southwest of Jacksonville. These areas are growing very rapidly with an estimated 32.3 percent increase in population from 1982 to 1987 (Moore 1988). A proposed Jacksonville outer beltway to connect Interstate 95 to Interstate 10 through St. Johns and Clay Counties will pass through these rapidly developing areas, possibly further accelerating growth.

B. *Overutilization for commercial, recreational, scientific, or educational purposes.* Not applicable at the present time. Since this plant has bulbs, it may be vulnerable to attempts to bring it into cultivation or to "rescue" it from the wild.

C. *Disease or predation.* None apparent.

D. *The inadequacy of existing regulatory mechanisms.* Bartram's ixia is listed as threatened (as *Sphenostigma coelestinum*) by the Preservation of Native Flora of Florida Act (section 581.185-187, Florida Statutes), which regulates taking, transport, and sale of plants but does not provide habitat protection. The Endangered Species Act will offer additional protection through sections 7 and 9, and through recovery planning.

E. *Other natural or manmade factors affecting its continued existence.* The restricted geographic range of this plant, combined with extensive alteration of its habitat, increases the risks posed by the preceding four factors, making it likely that the species could become extirpated throughout most of its range in the absence of organized conservation efforts.

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by Bartram's ixia in determining to propose this rule. Based on this evaluation, the preferred action is to list Bartram's ixia as endangered. Its limited geographic range, combined with alteration of nearly all of its habitat, the near certainty that existing populations on road edges will diminish, and the expansion of the Jacksonville urban area indicate that the species is in danger of extinction in a significant portion of its range, and therefore fits the Act's definition of endangered.

#### Critical Habitat

Section 4(a)(3) of the Act, as amended, requires that to the maximum extent prudent and determinable, the Secretary designate any habitat of a species which is considered to be critical habitat at the time the species is determined to be endangered or threatened. The Service finds that designation of critical habitat is not prudent for Bartram's ixia at this time. Federal agencies can be alerted to the presence of this species without the publication of critical habitat descriptions and maps. Because Bartram's ixia is a conspicuous plant when in flower, publication of critical habitat descriptions and maps might increase the threat from taking or vandalism. Designation of critical habitat affects only Federal agencies. No Federal agencies manage land with Bartram's ixia. Navy facilities in Jacksonville, at the edge of the plant's range, were searched, but no ixias were found (Martin 1987).

#### Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Endangered Species Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies, groups, and individuals. The Act provides for possible land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species. Such actions are initiated by the Service following listing. The protection required of Federal agencies and the prohibitions against taking are discussed, in part, below.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to critical habitat, if any is being designed. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR Part 402. Section 7(a)(4) requires Federal agencies to confer informally with the Service on any action that is likely jeopardize the continued existence of a proposed species or result in destruction or adverse modification of proposed critical habitat. If a species is subsequently listed, section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of a listed species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service.

The currently known sites for Bartram's ixia are on private land and highway rights-of-way. The Florida Department of Transportation is aware of the approximate locations of the populations of the ixia along its highways, and knows the precise location of the best such population. The populations of Bartram's ixia on State-owned rights-of-way may be subject to Federal involvement if the U.S. Department of Transportation (Federal Highway Administration) should provide funds for maintenance or construction. The Florida Department of Transportation is aware that construction of an outer beltway for Jacksonville could affect the plant; at the present time, no Federal funding is planned for the project. Bartram's ixia may eventually be found to occur on

Camp Blanding, which is operated by the Florida National Guard. Federal mortgage programs may be subject to section 7 review, including those of the U.S. Department of Agriculture (Farmers Home Administration), Veterans Administration, and the U.S. Department of Housing and Urban Development (Federal Housing Administration loans). The supply of electricity to new housing developments may be subject to Federal involvement through Rural Electrification Administration funding.

The Act and its implementing regulations found at 50 CFR 17.61, 17.62, and 17.63 set forth a series of general trade prohibitions and exceptions that apply to all endangered plants. All trade prohibitions of section 9(a)(2) of the Act, implemented by 50 CFR 17.61, would apply. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to import or export any endangered plant, transport it in interstate or foreign commerce in the course of a commercial activity, sell or offer to sell it in interstate or foreign commerce, or remove it from areas under Federal jurisdiction and reduce it to possession. In addition, for listed plants the 1988 amendments (Pub. L. 100-478) to the Act prohibit their malicious damage or destruction on Federal lands, and their removal, cutting, digging up, or damaging or destroying in knowing violation any State law or regulation, including State criminal trespass law. Certain exceptions can apply to agents of the Service and State conservation agencies. The Act and 50 CFR 17.62 and 17.63 also provide for the issuance of permits to carry out otherwise prohibited activities involving endangered species under certain circumstances. The Service anticipates few requests for permits because there is currently no known commercial trade in Bartram's ixia. Requests for copies of the regulations on plants and inquiries regarding them may be addressed to the Office of Management Authority, U.S. Fish and Wildlife Service, P.O. Box 27329, Central Station, Washington, DC 20038-7329 (202/343-4955).

#### Public Comments Solicited

The Service intends that any final action resulting from this proposal will be as accurate and as effective as possible. Therefore, any comments or suggestions from the public or other concerned governmental agencies, the scientific community, industry, or any other interested party concerning any aspect of this proposal are hereby

solicited. Comments particularly are sought concerning:

(1) Biological, commercial trade, or other relevant data concerning any threat (or lack thereof) to *Salpingostylis coelestina*;

(2) The location of any additional populations of this species and the reasons why any habitat should or should not be determined to be critical habitat as provided by Section 4 of the Act;

(3) Additional information concerning the range and distribution of this species; and

(4) Current or planned activities in the range and habitat of this species and their possible impacts on it.

Final promulgation of the regulation on *Salpingostylis coelestina* will take into consideration the comments and any additional information received by the Service, and such communications may lead to adoption of a final regulation that differs from this proposal.

The Endangered Species Act provides for a public hearing on this proposal, if requested. Requests must be filed within 45 days of the date of the proposal. Such requests must be made in writing and addressed to the Field Supervisor, Jacksonville Field Office, U.S. Fish and Wildlife Service, 3100 University Boulevard South, Suite 120, Jacksonville, Florida 32216.

#### National Environmental Policy Act

The Fish and Wildlife Service has determined that an Environmental Assessment, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted

pursuant to section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining the Service's reasons for this determination was published in the Federal Register on October 25, 1983 (48 FR 49244).

#### References Cited

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Wunderlin, R.P., D. Richardson, and B. Hansen. 1980. Status report on *Salpingostylis coelestina*. Unpublished report submitted to U.S. Fish and Wildlife Service, Jacksonville, Florida. 28 pp.

#### Author

The primary author of this proposed rule is David Martin, Jacksonville Field Office, U.S. Fish and Wildlife Service, 3100 University Boulevard South, Suite 120, Jacksonville, Florida 32216 (904/791-2580 or FTS 945-2580).

#### List of Subjects in 50 CFR Part 17

Endangered and threatened wildlife, Fish, Marine mammals, Plants (agriculture).

Accordingly, it is hereby proposed to amend Part 17, Subchapter B of Chapter I, Title 50 of the Code of Federal Regulations, as set forth below:

#### PART 17—[AMENDED]

##### Proposed Regulation Promulgation

1. The authority citation for Part 17 continues to read as follows:

Authority: Pub. L. 93-205, 87 Stat. 884; Pub. L. 94-359, 90 Stat. 911; Pub. L. 95-632, 92 Stat. 3751; Pub. L. 96-159, 93 Stat. 1225; Pub. L. 97-304, 96 Stat. 1411; Pub. L. 100-478, 102 Stat. 2306; Pub. L. 100-653, 102 Stat. 3825 (16 U.S.C. 1531 *et seq.*); Pub. L. 99-625, 100 Stat. 3500, unless otherwise noted.

2. It is proposed to amend § 17.12(h) by adding the following, in alphabetical order under the family Iridaceae, to the List of Endangered and Threatened Plants:

#### § 17.12 Endangered and threatened plants.

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(h) \* \* \*

Species		Historic range	Status	When listed	Critical habitat	Special rules
Scientific name	Common name					
Iridaceae—Iris family:						
Salpingostylis coelestina (= Sphenostigma coelestinum).	Bartram's ixia	U.S.A. (FL)	E		NA	NA

Dated: March 22, 1989.

Susan Reece Lamson,

Acting Assistant Secretary for Fish and Wildlife and Parks.

[FR Doc. 89-11997 Filed 5-18-89; 8:45 am]

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